

Do Operational Risks and Credit Risks Make Banks More Aggressive to Avoid Taxes? Empirical Study of Banking Companies on the Indonesia Stock Exchange

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ABSTRACT

This study aims to analyze the relationship between credit risk and operational risk on tax avoidance aggressiveness in banking companies in Indonesia for the period 2004–2021. The total observations in the study amounted to 271 samples. The testing method in this study uses multiple regression analysis with panel data. In general, the results show that Non-Performing Loans (NPL) is positively related to Effective Tax Rates (ETR); in this case, an increase in NPL does not make companies more aggressive in tax avoidance. While BOPO is negatively related ETR, in this case, an increase in BOPO makes the company more aggressive in tax avoidance. The results show significant differences in the effect of NPL and BOPO on ETR as a proxy for tax avoidance aggressiveness between the models analyzed. Although NPL shows a significant positive relationship with ETR in one of the first models, the relationship is not significant in the other models. Meanwhile, BOPO has an insignificant negative relationship with ETR in the first model but a negative significant relationship in the second model.

Keywords: credit risk, operational risk, tax avoidance, banking.

1. INTRODUCTION

The corporation's mission is to maximize shareholder value through maximizing profits. Profit maximization may be achieved through selling products or services (Henderson, 2021; Luyckx et al., 2022). However, if a corporation merely sells commodities, services, or both, it may not earn maximum profit, especially during globalization when competition intensifies (Kopljenovic, 2020). Companies must innovate or

diversify their goods, explore new markets, and minimize workloads, among other tactics. The company as an entity has a tax burden that must be paid as an obligation for the existence of the business carried out as regulated in a country's tax laws. Companies tend to lower their tax payments to enhance their earnings after taxes. In the context of a public corporation, reducing the tax burden is advantageous for shareholders (Wang et al., 2020).

Consequently, specific regulatory action may be implemented in the firm's administration

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to lower the tax burden. This activity has its incentives for management, as management is motivated by shareholder interests. This regulatory effort is known as aggressive tax activity. Tax aggressiveness is a company-specific activity involving transactions designed to lower the amount of corporate tax due via tax planning (Frank et al., 2009). In addition, Slemrod (2004) asserts that businesses would take advantage of leniency and legal interpretation gaps to decrease their tax burden through lawful actions due to creative compliance.

There are difficulties in determining the limits of aggressive tax planning and tax avoidance. Suandy (2011) defines tax avoidance as engineering tax affairs that are still within the framework of tax provisions. The company carries out tax avoidance because the company wants a large amount of profit. The existence of tax avoidance can hinder the government's efforts to optimize tax revenues to finance state revenues. Panjalusman et al. (2018) stated that tax avoidance is carried out by taking advantage of gaps and loopholes in tax regulations to reduce the amount of corporate tax significantly. The practice of tax avoidance has been widely practised in Indonesia and has caused state financial losses due to tax avoidance by companies. It was noted that from 2001-2009, Indonesia suffered a loss of \$109 billion.

One of the cases of tax avoidance that occurred in Indonesia is PT. Asian Agri operates in agriculture and plantation. PT. Asian Agri evaded corporate taxes of IDR 2.6 trillion (Bawoleh, 2021; Putri & Mulyani, 2020). Cobham et al., (2020) in *The State of Tax Justice 2020: Tax Justice during COVID-19* revealed that Indonesia is estimated to face a loss of US\$ 4.86 billion per year or equivalent to Rp. 68.7 trillion (exchange rate) Rupiah worth Rp. 14,149 per US dollar) due to tax avoidance. The loss came from corporate taxpayers worth US\$ 4.78 billion or equivalent to Rp 67.6 trillion. Meanwhile, the rest came from individual taxpayers, reaching US\$ 78.83 million or equivalent to Rp 1.1 trillion.

In addition, multinational companies transfer income (shifting income) to countries considered tax haven countries. Thus, companies that practice this practice end up paying less tax than they should. Then, individual taxpayers from the upper-class community hide assets and income declared abroad to avoid the law's reach in their country. The existence of state losses due to tax avoidance cannot be justified. There is a need for follow-up from the Ministry of Finance, in this case, the Directorate General of Taxes, so that tax loss due to tax avoidance does not occur, considering that tax revenues significantly contribute to State revenues listed in the State Revenue and Expenditure Budget. Previous research has demonstrated that tax avoidance is connected with increased company risk.

According to Rego & Wilson (2012), CEOs of businesses with lower Effective Tax Rates (ETR) get more substantial risk-taking incentives, which pushes them to pursue hazardous tax reduction measures. According to Badertscher et al. (2013), management ownership is positively associated with ETR, consistent with the notion that poorly diversified owner-managers avoid the inherent hazards of tax reduction techniques. Badertscher et al. (2013) discovered that firms with lower ETRs charged higher interest rates to secure bank loans. Banking firms represent an industry with significant business risk. The banking business is high-risk since it includes the management of public finances and is played out through various activities, including the provision of credit, the purchase of securities, and the investment of other funds.

Indonesia's banking system has been unstable throughout the previous two decades. The regulatory framework and features of the banking sector in Indonesia vary from other nations, affording a chance to investigate the influences of credit and operational risks on tax avoidance. Conducting research in Indonesia provides a comprehensive grasp of tax avoidance practices in various settings. This comprehensiveness offers valuable insights for

policymakers and other stakeholders in the country. The risks faced by the banking industry consist of five main risks, namely (1) credit risk, (2) market risk, (3) liquidity risk, (4) operational risk, and (5) capital risk (Sintha, 2020). These risks are represented through various financial ratios that show the management's performance in managing the bank.

This study attempts to determine the link between banking risk and tax avoidance in Indonesian banking organizations. Specifically, we investigate the impact of operational and credit risks on banking organizations' tax avoidance. Therefore, this study aims to determine if the increased risk in financial institutions would also increase the risk of tax avoidance.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

2.1 Agency Theory

Agency theory illustrates the company as a meeting point between the company's owner (principal) and management (agent). Jensen and Meckling state that an agency connection is an agreement between the manager and the company owner (Rokhlinasari, 2015). The principal is the group that gives accountability to the agent to act on behalf of the principal. In contrast, the agent is the party the principal is responsible for running the company. The agent must account for what has been delegated to him by the principal (Agustin et al., 2020; Narastri, 2022).

The agent and principal's powers and responsibilities are controlled in the employment contract upon mutual agreement. The employment agreement is a set of rules governing the profit-sharing mechanism, whether in the form of returns, returns or risks, which the principal and agent approve. The employment contract will be optimal if the contract has fairness, namely being able to balance the principal and the agent, which mathematically shows the optimal implementation of obligations by the agent and the provision of

sufficient incentives/special rewards from the principal to the agent.

According to Eisenhardt & Eisenhardt (2018), agency theory is based on three premises, namely: (a) assumptions about human nature, (b) assumptions about the organization, and (c) assumptions about information. Assumptions about human nature highlight that humans have the nature to be selfish (self-interest), have limited rationality (bounded rationality), and do not like risk (risk aversion). Organizational assumptions are conflicts between members of the organization, efficiency as a productivity measure, and the presence of Asymmetric Information between principals and agents. While the assumption about information is that information is seen as a commodity that can trade. Eka (2018) stated that both the principal and agent have bargaining positions.

The principal, the owner of capital, has the right to access the company's internal information. In contrast, the agent who runs the company's operations has accurate and comprehensive information about the company's operations and performance. Still, the agent does not have absolute authority to make strategic, long-term, and extensive global decisions. Different functions and backgrounds between the principal and the agent can cause a conflict of interest in the agency relationship.

There is a conflict of interest between the owner and the agent due to the possibility of the agent acting not in the principal's interests, thus triggering agency costs. A conflict of interest between the agent and the principal can lead to information asymmetry. This information asymmetry will result in the meaning of accounting information being biased. Agency theory can explain potential conflicts of interest between various interested parties in the company.

2.2 Credit Risk

Credit risk is the likelihood that a borrower will fail to fulfill their obligations to the bank (Aduda &

Gitonga, 2011; Ramadhanti & Hidayati, 2019). The primary source of this risk is the borrower's inability to achieve their financial obligations, which could include repaying the interest and principal on the loan granted. To counteract this risk, banks typically engage in various forms of mitigation, such as routine supervision and credit restructuring for debtors facing difficulties. This risk emerges when the bank fails to retrieve the entire loan or investment sum.

One of the chief culprits behind credit risk is the tendency of banks to lend and invest without conducting a rigorous risk analysis. The emphasis on liquidity usage sometimes leads banks to overlook potential risks during the credit assessment process. These risks could be attributable to either the borrower or the project being financed. Non-Performing Loans (NPL) are a significant credit risk indicator. NPLs denote loans granted by banks that face repayment hurdles due to internal or external factors (Korri & Baskara, 2019; Putri, 2013).

According to Siamat (2005), the NPL ratio can be assessed by comparing the value of loans anticipated to remain unpaid with the overall loans granted by the bank. Several factors can lead to bad debts. From the bank's internal perspective, factors such as 'Self Dealing,' where bank officials have a personal interest in granting credit, can influence credit decisions. Additionally, excessive ambition to increase revenue often leads to a lack of attention to loan quality and violations of credit principles due to limited information or inaccurate data, all of which contribute to risk. The lack of consistent and effective supervision, coupled with the practice of lending beyond the borrower's repayment capacity (i.e., overlending), are among the numerous factors contributing to credit risk in the banking industry.

2.3 Operational Risk

Operational risk is a crucial aspect financial institutions face in the banking industry (Abdullah et al., 2011; Dar et al., 2013). It pertains to the

potential losses arising from internal processes, systems, individual errors, or external factors affecting the bank's operations. Operational risk is the negative impact of problems arising from imperfections or failures in the bank's business processes or procedures (Hidayatusyarifah, 2021; Jasmine, 2023). Operational risk is broad in scope, unlike market or credit risk which usually occurs in specific domains.

Operational risk consists of distinct attributes inherent in each business process, making isolating or categorizing within any particular business division challenging. Operational risk is intricately connected to critical aspects of banking organizations and their operations, such as information technology, bank policies and procedures adherence, and fraud management. This underscores the significance of operational risk management, as its effects can be both financially and reputational costly for banks. Furthermore, Duho et al. (2020) supported the argument above by claiming that operational risk stems from deficiencies in various bank operations components, such as internal processes, systems, human resources, and external factors. This literature emphasizes the importance of banks identifying, monitoring, and controlling operational risks to maintain operational efficiency and business continuity.

2.4 The Effect of Operational Risk and Credit Risk in Banking on Effective Tax Rate

Credit risk is the risk encountered by banks because they channel their funds into loans to the public. The debtor may not fulfil his responsibilities to the bank (Mulyati, 2018; Sebayang, 2020). Receivables management is essential for companies whose operations provide credit because the more significant the receivables, the greater the risk. A NPL demonstrates a bank's capacity to recover the credit granted by the bank until it is repaid. NPL is the proportion of non-performing (substandard, dubious, and loss) loans

to the total loans given by banks (Mulyati, 2018; Sebayang, 2020). In other words, the bigger a bank's NPL, the more significant the performance disruption.

The amount of efficiency and the bank's capacity to carry out operational tasks are measured by operational expenses (Mardiana & Purnamasari, 2018; Sihotang et al., 2022). Banks incur operational expenses to conduct their core business operations (including interest, labor, marketing, and other operating costs). Operating income is a bank's primary source of income, consisting primarily of interest income from the placement of money in the form of credit and other operating income.

BOPO is quantitatively assessed using the efficiency ratio. This ratio measures whether the bank's management has appropriately and efficiently utilized its production components (Karamoy & Tulung, 2019; Rajindra et al., 2021). The efficiency of a bank's business is measured using the ratio of operating costs compared to operating income (BOPO). BOPO compares total operating expenses with the entire operating income.

Tax provisions related to NPLs can be seen in the Minister of Finance Regulation Number 207/PMK.010/2015 concerning the Second Amendment to the Minister of Finance Regulation Number 105/PMK.03/2009 concerning Uncollectible Receivables That Can Be Deducted From Gross Income. Article 2 of PMK Number 207/PMK.010/2015 states that "Uncollectible Debts are receivables that arise from normal business transactions by their line of business, which is uncollectible even though efforts have been made to maximum or final collection by the Taxpayer."

Requirements for receivables that are uncollectible can be charged as a deduction from gross income as long as they meet the following requirements:

- a) has been charged as an expense in the commercial income statement;
- b) Taxpayers must submit a list of clearly uncollectible receivables to the Directorate General of Taxes; and

- c) The uncollectible receivables have been submitted for collection to the District Court or government agency that handles state receivables, or there is a written agreement regarding the write-off of receivables/debt relief between the creditor and the debtor on the receivables that are uncollectible or have been published in a general or special publication, or there is an acknowledgment from the debtor that the debt has been written off for a certain amount of debt.

The greater the NPL value will affect the amount of tax payable. Of course, NPL will also have an impact on increasing operating expenses. This addition will result in a higher BOPO value. The greater the operational expenses, the smaller the ETR value will be. This relation shows an increase in tax aggressiveness due to the addition of NPL and BOPO. So that the hypothesis that we build in this study is that Operational Risk and Credit Risk affect the Effective Tax Rate of banking companies in Indonesia

3. RESEARCH METHODOLOGY

3.1 Data and Samples

Sugiyono (2011) revealed that the population is a generalization area consisting of objects or subjects with specific quantities and characteristics determined by researchers to be studied and then concluded. The data sources in this study are from the Indonesia Stock Exchange and the Indonesian Financial Services Authority. The population used in this study are 24 companies that carry out their banking sector activities listed on the Indonesia Stock Exchange in 2004-2021. This study has yet to be able to take all banking companies on the Indonesia Stock Exchange.

The number of companies, as many as 24 banking companies, was chosen by considering the availability of NPL and BOPO data on the Indonesian Financial Services Authority website. The method used in collecting samples in this study

is purposive sampling. Purposive sampling is a sampling method based on specific considerations (Campbell et al., 2020).

The considerations mentioned in the statement in this study are (a) banking companies listed on the Indonesia Stock Exchange from 2004 to 2021, (b) companies whose financial statements have been audited, (c) using rupiah currency, (d) the sampled companies do not have a tax avoidance proxy value (ETR) of less than zero or more than one, and (e) companies that have complete data for all variables used during the study period.

So that the total observations in this study amounted to 271 observations. The data in this study were processed using STATA 15 software in performing the regression model. For calculating each variable and processing financial report data using Microsoft Excel.

3.2 Research Model

Hypothesis testing in this study uses the results obtained from the regression results. Regression models that will be used in research that are considered relevant, namely:

$$ETR_1 = \beta_0 + \beta_1 NPL_{it} + \beta_2 BOPO_{it} + \beta_3 FSIZE_{it} + \beta_4 FAGE_{it} + \beta_5 PBV_{it} + \beta_6 ROA_{it} + \beta_7 ROE_{it} + \beta_8 SIG_{it} + \varepsilon_{it} \quad (1)$$

$$ETR_2 = \beta_0 + \beta_1 NPL_{it} + \beta_2 BOPO_{it} + \beta_3 FSIZE_{it} + \beta_4 FAGE_{it} + \beta_5 PBV_{it} + \beta_6 ROA_{it} + \beta_7 ROE_{it} + \beta_8 SIG_{it} + \varepsilon_{it} \quad (2)$$

Information:

- ETR1 = First Proxy Effective Tax Rate
- ETR2 = Second Proxy of Effective Tax Rate
- NPL = Non Performing Loan
- BOPO = Operating Exp. and Operating Income
- FSIZE = Firm size
- FAGE = Firm age
- PBV = Price-to-Book Value Ratio
- ROA = Return on Assets
- ROE = Return on Equity
- SIG = Sales Income Growth Rate

3.3 Selection of Panel Data Regression Estimation

In estimating panel data, this study uses three model parameters, namely Fixed Effect Model (FEM), Random Effect Model (REM), and Pooled Least Square (PLS). Several tests were carried out by estimating the three models: the Chow test, the Breusch Pagan Lagrange Multiple tests, and the Hausman test. The three tests aim to estimate which method is the most suitable for use in research. The Chow test determines whether the research should use the FEM or PLS model. If $F_{Restricted} < 0.05$, then the FE model is a suitable model to use. To determine the correct model between PLS and RE, use the LM test. The results of the LM test with $Prob F < 0.05$ indicate that the RE model is suitable. The step to find the right model between the RE and FE models is to use the Hausman test. Prob F value < 0.05 indicates if the FE model is suitable.

3.4 Variable Operations

Table 1 is a table of operationalization of variable used in this study.

4. RESULTS AND DISCUSSIONS

4.1 Descriptive Statistics

Descriptive statistics examine data by summarizing or describing the acquired data without drawing generally accepted inferences or generalizations. In descriptive statistics, each variable's mean, standard deviation, minimum, and maximum values are sought. The statistical descriptive of each variable can be seen in Table 2. Table 2 shows that the ETR1 variable, as one of the dependent variables in this study, has an average value of 0.35793 with a minimum value range of 0.00000 and a maximum weight of 0.98934. Meanwhile, the ETR2 value is on average 0.08777 with a standard deviation of 0.10034.

The NPL ratio demonstrates the capability of bank management to manage non-performing loans provided by banks. The higher the NPL ratio, the worse the credit quality, which causes the number of non-performing loans to rise it can

Table 1 Variable Operations

Variable	Operationalization
ETR ₁	(Worldwide Income Tax Expense)/(Worldwide total pre-tax accounting income) (Hanlon & Heitzman, 2010) Source: Indonesia Stock Exchange
ETR ₂	(Worldwide Income Tax Expense)/(Earning Before Interest Tax, Depreciation, And Amortization) (Stamatopoulos et al., 2019) Source: Indonesia Stock Exchange
NPL	Operating Expenses divided by Revenue Operational (Al Iqbal & Budiyanto, 2020; Wahyuni, 2016) Source: Indonesian Financial Services Authority
BOPO	Operating Expenses divided by Revenue Operational (Al Iqbal & Budiyanto, 2020; Wahyuni, 2016) Source: Indonesian Financial Services Authority
Control Variables:	
FISIZE	Natural Logarithm of Total Assets (Aduralere Opeyemi, 2019; Ayuba et al., 2019) Source: Indonesia Stock Exchange
FAGE	Natural Logarithm of Subtraction between the year of measurement and the year the company was founded (Kieschnick & Moussawi, 2018) Source: Indonesia Stock Exchange
PBV	Share Price divided by Book Value per Share (Al Iqbal & Budiyanto, 2020; Wahyuni, 2016) Source: Indonesia Stock Exchange
ROA	Pre-tax income divided by total assets (Richardson & Lanis, 2007) Source: Indonesia Stock Exchange
ROE	Pre-tax income divided by the book value of equity (Moussu & Petit-Romec, 2014) Source: Indonesia Stock Exchange

cause a bank to be in a challenging condition. The average NPL value for 271 observations is 3,04493, with a maximum weight of 24,84000. BOPO describes the efficiency of a bank in carrying out its operational activities. The table above shows that the highest value of BOPO is 287.86, with the lowest value being 0.86. A high BOPO value indicates that the bank cannot carry out its operational activities efficiently, leading to very minimal company profits.

The average BOPO value is 93,82375 above the standard set by Bank Indonesia, which is 90%. The firm size variable as proxied by FSIZE shows the average value and standard deviation of 24,26979 and 1,99620, respectively. Meanwhile, the firm age indicated by FAGE shows an average value of 3,86848. The average values for PBV, ROA and ROE were 2.54494, 0.01175, and 0.10053, respectively. At the same time, the value of sales growth shows an average value of 0.21439 or 21.439% per year.

4.2 Correlation Analysis

The Pearson correlation test was done to determine the link between variables in the study model; the association between variables has a value between 0 and 1. A correlation value greater than 0.8 suggests a significant relationship between variables, whereas a correlation value of 1 implies a perfect relationship. Table 3 shows the findings of the correlation analysis.

The test results show that the credit risk and operational risk variables significantly correlate to ETR 1, while ETR 2 does not. Based on table 3, the results of the Pearson correlation test show that the variables FSIZE, PBV, and ROE have a significant correlation with the first proxy of the effective tax rate (ETR1) at 99% and 95% confidence levels. Meanwhile, ROA and SIG have no significant correlation with the first proxy of the effective tax rate (ETR1). In the second model, the control variables, namely ROA, ROE, and GIS, are significantly correlated with the two proxies of the effective tax rate (ETR2).

Table 2 Descriptive Statistics
Source: Author's Calculation

Variable	Obs	Mean	Std. dev.	Min	Max
ETR1	271	0.35793	0.13924	0.00000	0.98934
ETR2	271	0.08777	0.10034	0.00000	0.96587
NPL	271	3.04493	3.02960	0.00000	24.84000
BOPO	271	93.82375	35.49410	0.86000	287.86000
FSIZE	271	24.26979	1.99620	18.31280	28.14870
FAGE	271	3.86848	0.56126	2.83320	4.83630
PBV	271	2.54494	6.35714	0.32670	85.65000
ROA	271	0.01175	0.01480	-0.08700	0.04140
ROE	271	0.10053	0.10091	-0.54700	0.36290
SIG	271	0.21439	0.52118	-0.70620	5.05490

4.3 First Model Regression

There are three types of research estimates for the panel data model: PLS, REM, and FEM. Therefore, it is required to initially evaluate the estimation of the research model using the panel data model. The Lagrange multiplier, Chow, and Hausman tests can be utilized to determine the selection of the

optimal estimating model. The first model of this investigation used a fixed effect model estimation consistent with the Lagrange multiplier, Chow, and Hausman test outcomes. Table 4 displays the results of each estimation.

According to table 4, the probabilistic F statistical value of the study model is less than 1%, indicating that the model is statistically significant

Table 3 Correlation Table
Source: Author's Calculation

Variables	ETR1	ETR2	NPL	BOPO	FSIZE	FAGE	PBV	ROA	ROE	SIG
ETR1	1.000									
ETR2	0.119*	1.000								
NPL	0.194***	0.064	1.000							
BOPO	0.156**	0.091	0.405***	1.000						
FSIZE	-0.178***	0.055	0.061	-0.258***	1.000					
FAGE	-0.052	0.055	0.046	-0.152**	0.748***	1.000				
PBV	-0.196***	-0.008	-0.066	0.118*	-0.113*	-0.115*	1.000			
ROA	-0.072	-0.264***	-0.048	-0.468***	0.453***	0.417***	-0.074	1.000		
ROE	-0.143**	-0.324***	0.014	-0.323***	0.510***	0.494***	-0.050	0.875***	1.000	
SIG	0.007	0.152**	-0.125**	0.036	-0.197***	-0.172***	0.517***	-0.285***	-0.229***	1.000

Table 4 First Model Regression
Source: Author's Calculation

	PLS	FEM	REM
npl	0.00807*** (0.006)	0.0135**** (0.000)	0.00722** (0.020)
bopo	0.000554*	-0.00000749	0.000405
fsize	(0.058)	(0.980)	(0.152)
fage	-0.0196*** (0.002)	-0.0272* (0.088)	-0.0334**** (0.000)
pbv	0.0461**	-0.0937	0.0734*
roa	(0.033)	(0.439)	(0.060)
roe	-0.00644**** (0.000)	-0.00823**** (0.000)	-0.00798**** (0.000)
sig	4.065***	1.778	3.329***
_cons	(0.001)	(0.281)	(0.010)
_cons	-0.551*** (0.002)	-0.303 (0.179)	-0.440** (0.016)
<i>N</i>	271	271	271
<i>Prob > F</i>	0.0000	0.0000	0.0000
<i>R</i> ²	0.181	0.211	

p-values in parentheses

* *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01, **** *p* < 0.001

at the 99% confidence level. The degree of confidence implies that the dependent variable significantly affects the independent variable in the research model. The R-Square score of the research model is 0.211, indicating that the independent factors can account for 21.10% of the variance in the dependent variable (ETR1). Independent variables are NPL, BOPO, FSIZE, FAGE, PBV, ROA, ROE, and GIS. The remaining variance of 78.9% is determined by variables independent of the research.

The coefficient of the NPL variable is 0.0135, and its probability is 0.000. The coefficient

value of 0.0135 reveals a correlation between non-performing loans and tax avoidance—the greater the value of non-performing loans, the greater the company's tax avoidance. The greater the NPL value, the greater the ETR value. A high proportion of non-performing loans does not make tax avoidance more aggressive. At a confidence level of 99.99%, a probability value 0.000 suggests that the non-performing loan variable is significantly associated with tax avoidance. While the variable BOPO's coefficient is -0.00000749 with a probability of 0.98, The coefficient value of 0.0135 implies that BOPO and tax avoidance have a

Table 5 Second Model Regression
Source: Author's Calculation

	PLS	FEM	REM
npl	0.00228 (0.271)	0.00106 (0.594)	0.00303 (0.135)
bopo	0.0000712 (0.731)	-0.000380** (0.021)	0.0000123 (0.948)
fsize	0.00999** (0.024)	-0.0399**** (0.000)	-0.00356 (0.523)
fage	0.0284* (0.064)	-0.0354 (0.589)	0.0555** (0.011)
pbv	-0.00116 (0.268)	0.00232** (0.037)	-0.00109 (0.282)
roa	1.223 (0.161)	0.340 (0.702)	0.978 (0.246)
roe	-0.615**** (0.000)	-0.961**** (0.000)	-0.705**** (0.000)
sig	0.0335** (0.012)	-0.00717 (0.485)	0.0206* (0.091)
_cons	-0.235*** (0.005)	1.313**** (0.000)	0.00389 (0.969)
_cons	-0.235*** (0.005)	1.313**** (0.000)	0.00389 (0.969)
<i>N</i>	271	271	271
<i>Prob > F</i>	0.000	0.000	0.000
<i>R</i> ²	0.207	0.506	

p-values in parentheses

* *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01, **** *p* < 0.001

negative association. The ETR value will decrease when the BOPO value rises. This relation indicates that the bigger a company's operational expenditures, the less tax it pays; hence, the more aggressive it is. The likelihood value 0.98 suggests that the BOPO variable does not affect tax avoidance. As for the control variables, only FSIZE, PBV, and SIG variables are significant on the tax avoidance proxy.

4.4 Second Model Regression

The second model of this study uses a fixed effect model estimation in accordance with the results of the lagrange multiplier, chow and hausman tests. The results of each estimate can be presented in Table 5.

Based on table 5, the probabilistic F statistical value of the research model is below 1%; this value indicates the research model is a significant model at the 99% confidence level. The confidence level means that the independent

variable in the research model is significantly affected by the dependent variable. The R-Square value of the research model is 0.506, which indicates that the independent variables of 50.60% can explain the variation in the dependent variable (ETR2). The independent variables are NPL, BOPO, FSIZE, FAGE, PBV, ROA, ROE, and GIS. 49.40% is another variation determined by independent variables outside of the study.

The NPL variable has a coefficient of 0.00106 with a probability of 0.594. The coefficient weight of 0.00106 shows a positive association between non-performing loans and tax avoidance. The more the importance of non-performing loans, the higher the level of tax avoidance by the company. A high NPL value means that the higher the ETR value. It can identify that a high level of NPL does not make tax avoidance more aggressive. The probability value 0.594 indicates that the non-performing loan variable is insignificant to tax avoidance. At the same time, the coefficient of the BOPO variable is -0.000380 with a probability of 0.980. The coefficient value of 0.0135 indicates a negative association between BOPO and tax avoidance.

The higher the BOPO value, the smaller the ETR value will be. This relation means that the greater the company's operating expenses, the smaller the tax paid, which can be more aggressive. The probability value 0.021 indicates that the BOPO variable is significant to tax avoidance at the 95% confidence level. As for the control variables, only FSIZE, PBV, and ROE variables are substantial on the tax avoidance proxy.

Discussion

Non-performing loans are a significant metric for evaluating a bank's financial well-being in the banking industry. Our investigation reveals a favorable correlation between NPL and ETR. In this regard, banks with larger NPLs typically have reduced levels of tax avoidance, indicated by higher ETR. However, an inverse relationship exists between ETR and BOPO, which measures a bank's operational competence.

Previous studies buttress our findings. Guenther et al. (2017) established that low tax rates,

which imply increased tax avoidance, are generally more stable than high tax rates. This theory indicates that banks with better operational performance are more likely to engage in tax avoidance. Concerning NPLs, it is plausible that banks with higher NPLs adopt more cautious tax avoidance strategies, preferring to maintain relatively higher and stable tax rates. On the other hand, Cao (2021) observes that a reduced cash-effective tax rate corresponds to increased future return volatility. Considering our BOPO findings, banks with improved efficiency in their operations may be inclined to take more risks, including those associated with tax avoidance strategies, subsequently escalating their return volatility.

When examining the effects of NPL and BOPO variables on both regression models within the scope of ETR, it is essential to consider the calculation basis of ETR in each scenario. The initial analysis calculates ETR as a ratio of Worldwide Income Tax Expenses to Worldwide total pre-tax accounting income. This denominator encompasses all revenue and expenditure items, offering a comprehensive view of the company's operations. In this context, a firm's NPLs, which indicate its credit asset quality, could more immediately affect ETR. For instance, numerous non-performing loans held by a company could influence its total revenue and profit before tax, leading to notable adjustments to ETR. Conversely, the banking operations and processes outsourcing may carry less weight in this context since operating expenses can be just one of the multiple variables influencing pre-tax income.

The second analysis measures ETR by comparing Worldwide Income Tax Expenses with EBITDA, focusing on the company's underlying operations. Aspects such as interest, depreciation, and amortization are ignored. Operational efficiency, measured by BOPO, may significantly impact ETR in this regression model. If operating expenses increase and revenue does not match, EBITDA will decrease, leading to an increase in ETR. However, it is essential to note that NPLs may have a limited impact on a firm's core operating activities, therefore less impacting ETR in this context. It is also essential to consider the possible interaction between NPLs and BOPO in affecting

ETR. The initial analysis indicates that high NPLs and efficient BOPO may have compensated for each other, making BOPO insignificant. However, in the context of EBITDA, the long-term effect of high NPL may have a lesser impact compared to the direct effect of BOPO on the company's operations. Moreover, it can be inferred that the fundamental dissimilarities in the ETR calculation approach in both regression models have influenced how NPL and BOPO interrelate with ETR.

5. CONCLUSION

Non-performing loans and operating expenses are both a measure of the risk in banking companies. From every credit the bank gives the customer, not all can be appropriately returned, not by the promised time. However, in reality, there are some customers who, for some reason, the financial ratio used to represent the weight of credit risk is a Non-Performing Loan (NPL). This ratio shows the bank management's capacity to manage non-performing loans provided by banks. NPL images credit risk; the smaller the NPL, the smaller the credit risk the bank accepts.

In both regression equation models, the results show that NPL positively affects the tax avoidance proxy. An increase in NPL means that it indicates an increase in the value of the ETR. On the other hand, a decrease in NPL will result in a smaller ETR value. The aggressiveness of tax avoidance is measured using the ETR calculated by dividing the income tax expense by the total pre-tax accounting income. The smaller the tax rate indicates the company is getting more aggressive in tax aggressiveness.

While the operational risk variable in banking is proxied by BOPO, the ratio of operating expenses to operating income is often called the efficiency ratio, which is used to estimate the capability of bank management to control operational costs to operating income. The less this ratio means, the more efficient the operational expenses incurred by the bank involved. A bank's success is based on a quantitative assessment of a bank's profitability that can be measured using the ratio of operating costs to operating income. The

reason is that any growth in operations will result in a profit before tax and eventually reduce the profit or profitability of the concerned bank. The test results in the first and second models conclude that operational risk variables have a negative effect on tax avoidance. The smaller the operational risk, the greater the ETR value. On the other hand, the greater the value of operational risk, the smaller the ETR. The smaller the ETR variable value indicates tax avoidance's aggressiveness.

From the analyses conducted on the impact of NPLs and BOPO on the ETR through two different approaches, it is clear that the choice of calculation basis for ETR is critical. In the first model, where ETR is derived from Worldwide total pre-tax accounting income, NPLs significantly affect ETR, indicating that the level of NPLs in a firm may impact its tax liability. In contrast, BOPO appears to have a lesser impact on ETR in the context of this model. However, the dynamics alter when considering the second model, which evaluates ETR by contrasting with EBITDA. BOPO emerges as the predominant influence variable, indicating that a company's operational efficiency could impact its tax avoidance conduct.

Conversely, the relevance of NPL lessens in this model. To summarise, selecting a model and calculation basis for assessing ETR holds immense importance. This conclusion implies that the understanding of tax avoidance may remain the same based on the technique employed.

6. IMPLICATIONS AND LIMITATIONS

Various implications arise from the research results concerning the effects of NPL and BOPO on the ETR within Indonesia's banking industry. Tax authorities must understand the tax avoidance mechanism and the influencing factors. The findings that NPL and BOPO can influence ETR depending on the method of calculation highlight the necessity to tailor examination and audit approaches. Thus, it will be simpler for tax authorities to identify potential tax avoidance cases. Countries with similar banking structures can benefit by examining these variables in their context, potentially improving their tax regulatory

frameworks. This study emphasizes NPL and BOPO management's significance in tax planning for banking organizations—their operational effectiveness and credit portfolio quality impact not just their financial performance but also their tax liability.

Meanwhile, for prospective researchers, there is an opening to broaden the range of this investigation. As there is a divergence of outcomes between the two ETR calculation methodologies, further research is required to scrutinize alternative indicators of tax avoidance for an all-encompassing comprehension. Furthermore, considering that this probe concentrates solely on Indonesian samples, it imposes constraints on the universality of the findings. Financial and banking markets in other countries may have divergent dynamics, potentially impacting the link between NPL, BOPO, and tax avoidance. Another limitation pertains to the varying outcomes of NPL and BOPO on each regression analysis. This limitation implies that the definition and measurement of tax avoidance may impact the association between these variables and tax avoidance. Hence, researchers should broaden the sample beyond Indonesia and explore other tax avoidance indicators to ensure the durability of the results and provide a more holistic understanding of the tax avoidance phenomenon.

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